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HUCHRA, J. P. A Deep Abell Cluster Redshift Survey. *J. P. Huchra, J. P. Henry, M. Postman, and M. J. Geller.* 365, 66, 206-G1 (1990)

HUMMER, DAVID G. Photospheres of Hot Stars. IV. Spectral Type O4. *Bruce Bohannan, Stephen A. Voels, David G. Hummer, and David C. Abbott.* 365, 729, 217-C13 (1990)

HUNTER, DEIDRE A. One Galaxy from Several: The Hickson Compact Group H31. *Vera C. Rubin, Deidre A. Hunter, and W. Kent Ford, Jr.* 365, 86, 207-A10 (1990)

HUT, PIET. Bottlenecks in Simulations of Dense Stellar Systems. *Junichiro Makino and Piet Hut.* 365, 208, 208-F11 (1990)

IMAMURA, JAMES N. The 8 Second Optical Quasi-periodic Oscillations in GX 339–4. *James N. Imamura, Jerome Kristian, John Middleditch, and Thomas Y. Steiman-Cameron.* 365, 312, 210-C5 (1990)

INAGAKI, SHOGO. The Kinetic Evolution and Velocity Distribution of Gravitational Galaxy Clustering. *William C. Saslaw, S. M. Chitre, Makoto Itoh, and Shogo Inagaki.* 365, 419, 213-C1 (1990)

ISHIDA, M. Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* 365, L59, 219-C11 (1990)

ITOH, MAKOTO. The Kinetic Evolution and Velocity Distribution of Gravitational Galaxy Clustering. *William C. Saslaw, S. M. Chitre, Makoto Itoh, and Shogo Inagaki.* 365, 419, 213-C1 (1990)

JACKSON, J. M. Molecular Absorption Lines toward the Nucleus of Centaurus A. *A. Eckart, M. Cameron, R. Genzel, J. M. Jackson, H. Rothermel, J. Stutzki, G. Rydbeck, and T. Wiklind.* 365, 522, 214-F7 (1990)

JACOBY, GEORGE H. Planetary Nebulae as Standard Candles. VI. A Test in the Magellanic Clouds. *George H. Jacoby, Alistair R. Walker, and Robin Ciardullo.* 365, 471, 213-G7 (1990)

JAROSZYŃSKI, MICHAL. Weak Gravitational Lensing Due to Large-Scale Structure of the Universe. *Michał Jaroszyński, Changbom Park, Bohdan Paczyński, and J. Richard Gott III.* 365, 22, 206-C10 (1990)

JEWITT, DAVID. The Submillimeter Radio Continuum of Comet P/Brorsen-Metcalf. *David Jewitt and Jane Luu.* 365, 738, 217-D10 (1990)

JIN, LIPING. Dynamo Action by Internal Waves in Accretion Disks. *Ethan T. Vishniac, Liping Jin, and Patrick Diamond.* 365, 648, 216-C8 (1990)

JOY, M. High Spatial Resolution Mapping of the Cepheus A Region at 20, 50, and 100 Microns. *H. B. Ellis, Jr., D. F. Lester, P. M. Harvey, M. Joy, C. M. Telesco, R. Decher, and M. W. Werner.* 365, 287, 210-A6 (1990)

JURA, M. The Absence of Circumstellar Dust Debris around G Giants. *M. Jura.* 365, 317, 210-C11 (1990)

KAIFU, NORIO. The Density Structure of the Protostellar Disk: A Power-Law Distribution of the Dust around GGD 27 IRS. *Takuya Yamashita, Shuji Sato, Norio Kaifu, and Saeko S. Hayashi.* 365, 615, 215-G9 (1990)

KALLMAN, TIMOTHY R. X-Ray Illuminated Stellar Winds: Ionization Effects in the Radiative Driving of Stellar Winds in Massive X-Ray Binary Systems. *Ian R. Stevens and Timothy R. Kallman.* 365, 321, 210-D1 (1990)

KAWADA, M. Optically Thin Hot Plasma near the Galactic Center: Mapping Observations of the 6.7 keV Iron Line. *S. Yamauchi, M. Kawada, K. Koyama, H. Kunieda, and Y. Tawara.* 365, 532, 214-G5 (1990)

KAWARA, KIMIAKI. CO Emission from the Nucleus of Infrared Galaxy NGC 4418: An Early AGN Phase? *Kimiaki Kawara, Yoshiaki Taniguchi, Naomasa Nakai, and Yoshiaki Sofue.* 365, L1, 212-A5 (1990)

KIDDER, K. M. Detection of Trace Helium in G104-27, A 26,000 K DA White Dwarf. *J. B. Holberg, K. M. Kidder, and F. Wesemael.* 365, L77, 219-E7 (1990)

KII, T. Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* 365, L59, 219-C11 (1990)

KILLIAN, T. C. Laboratory Detection of a Second Carbon Chain Carbene: Butatrienylidene, H_2CCCC. *T. C. Killian, J. M. Vrtilek, C. A. Gottlieb, E. W. Gottlieb, and P. Thaddeus.* 365, L89, 219-F11 (1990)

KITAMOTO, S. Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* 365, L59, 219-C11 (1990)

KONDO, H. X-Ray Spectrum of the Spiral Galaxy M51 (NGC 5194). *K. Makishima, T. Ohashi, H. Kondo, G. G. C. Palumbo, and G. Trinchieri.* 365, 159, 208-B3 (1990)

KOONIN, S. E. Pycnonuclear Fusion Rates. *S. Schramm and S. E. Koonin.* 365, 296, 210-B1 (1990)

KOWALSKI, M. P. *Spartan 1* X-Ray Observations of the Perseus Cluster. II. The Distribution of Flux and Hardness Ratio Out to a Radius of 50 Arcminutes. *W. A. Snyder, M. P. Kowalski, R. G. Cruddace, G. G. Fritz, J. Middleditch, E. E. Fenimore, M. P. Ulmer, and S. R. Majewski.* 365, 460, 213-F8 (1990)

KOYAMA, K. X-Ray Observations of NGC 253 and M83 with *Ginga*. *T. Ohashi, K. Makishima, T. Tsuru, S. Takano, K. Koyama, and G. C. Stewart.* 365, 180, 208-D9 (1990)

Optically Thin Hot Plasma near the Galactic Center: Mapping Observations of the 6.7 keV Iron Line. *S. Yamauchi, M. Kawada, K. Koyama, H. Kunieda, and Y. Tawara.* 365, 532, 214-G5 (1990)

KRISTIAN, JEROME. The 8 Second Optical Quasi-periodic Oscillations in GX 339−4. *James N. Imamura, Jerome Kristian, John Middleditch, and Thomas Y. Steiman-Cameron.* 365, 312, 210-C5 (1990)

KUNDU, M. R. The Observation of an Unusually Fast Type IV Plasmoid. *N. Gopalswamy and M. R. Kundu.* 365, L31, 212-D1 (1990)

KUNIEDA, H. Optically Thin Hot Plasma near the Galactic Center: Mapping Observations of the 6.7 keV Iron Line. *S. Yamauchi, M. Kawada, K. Koyama, H. Kunieda, and Y. Tawara.* 365, 532, 214-G5 (1990)

Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* 365, L59, 219-C11 (1990)

KUTNER, MARC L. CO(J = 2 → 1) Study of Molecular Clouds in the Southwest Arm of M31. *Marc L. Kutner, Frances Verter, and Lee J Rickard.* 365, 195, 208-E11 (1990)

KWOK, SUN. On the Formation of Carbon Stars. *Greg L. Bryan, Kevin Volk, and Sun Kwok.* 365, 301, 210-B7 (1990)

LESTER, D. F. High Spatial Resolution Mapping of the Cepheus A Region at 20, 50, and 100 Microns. *H. B. Ellis, Jr., D. F. Lester, P. M. Harvey, M. Joy, C. M. Telesco, R. Decher, and M. W. Werner.* 365, 287, 210-A6 (1990)

LEWIN, W. H. G. Radio and X-Ray States in the X-Ray Binary Scorpius X-1. *R. M. Hjellming, R. T. Stewart, G. L. White, R. Strom, W. H. G. Lewin, P. Hertz, K. S. Wood, J. P. Norris, K. Mitsuda, W. Penninx, and J. van Paradijs.* 365, 681, 216-F7 (1990)

LIEBERT, JAMES. Extended Lyα Emission Associated with 3C 294. *Patrick J. McCarthy, Hyron Spinrad, Wil van Breugel, James Liebert, Mark Dickinson, S. Djorgovski, and Peter Eisenhardt.* 365, 487, 214-B9 (1990)

MS 1603.6+2600, An Unusual X-Ray Selected Binary System at High Galactic Latitude. *Simon L. Morris, James Liebert, John T. Stocke, Isabella M. Gioia, Rudy E. Schild, and Anna Wolter.* 365, 686, 216-G1 (1990)

LIN, D. N. C. Propagation of Tidal Disturbance in Gaseous Accretion Disks. *D. N. C. Lin, J. C. B. Papaloizou, and G. J. Savonije.* 365, 748, 217-E8 (1990)

LIZANO, S. VLA Observations of High-Velocity H I Associated with the Herbig-Haro Objects 7–11. *L. F. Rodríguez, S. Lizano, J. Cantó, V. Escalante, and I. F. Mirabel.* 365, 261, 209-F5 (1990)

LOCKWOOD, J. A. Cosmic-Ray Gradient Measurements and Modulation beyond the Inner Solar Wind Termination Shock. *J. J. Quenby, J. A. Lockwood, and W. R. Webber.* 365, 365, 211-A1 (1990)

LOREN, ROBERT B. Cold DCO^+ Cores and Protostars in the Warm ρ Ophiuchi Cloud. *Robert B. Loren, Alwyn Wootten, and Bruce A. Wilking.* 365, 269, 209-G1 (1990)

LUU, JANE. The Submillimeter Radio Continuum of Comet P/Brorsen-Metcalf. *David Jewitt and Jane Luu.* 365, 738, 217-D10 (1990)

MAC LOW, MORDECAI-MARK. X-Rays from Superbubbles in the Large Magellanic Cloud. *You-Hua Chu and Mordecai-Mark Mac Low.* 365, 510, 214-D9 (1990)

MADORE, BARRY F. An Empirical Test for the Metallicity Sensitivity of the Cepheid Period-Luminosity Relation. *Wendy L. Freedman and Barry F. Madore.* 365, 186, 208-E1 (1990)

MAGALHÃES, A. M. A Rotating, Expanding Disk in the Wolf-Rayet Star EZ Canis Majoris? *R. E. Schulte-Ladbeck, K. H. Nordsieck, M. A. Nook, A. M. Magalhães, M. Taylor, K. S. Bjorkman, and C. M. Anderson.* 365, L19, 212-C1 (1990)

MAJEWSKI, S. R. *Spartan 1* X-Ray Observations of the Perseus Cluster. II. The Distribution of Flux and Hardness Ratio Out to a Radius of 50 Arcminutes. *W. A. Snyder, M. P. Kowalski, R. G. Cruddace, G. G. Fritz, J. Middleditch, E. E. Fenimore, M. P. Ulmer, and S. R. Majewski.* 365, 460, 213-F8 (1990)

MAKINO, F. Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331.+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* 365, L59, 219-C11 (1990)

MAKINO, JUNICHIRO. Bottlenecks in Simulations of Dense Stellar Systems. *Junichiro Makino and Piet Hut.* 365, 208, 208-F11 (1990)

MAKISHIMA, K. X-Ray Spectrum of the Spiral Galaxy M51 (NGC 5194). *K. Makishima, T. Ohashi, H. Kondo, G. G. C. Palumbo, and G. Trinchieri.* **365**, 159, 208-B3 (1990)

X-Ray Observations of NGC 253 and M83 with *Ginga*. *T. Ohashi, K. Makishima, T. Tsuru, S. Takano, K. Koyama, and G. C. Stewart.* **365**, 180, 208-D9 (1990)

Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* **365**, L59, 219-C11 (1990)

MAOZ, DAN. On the Emission-Line Response to Continuum Variations in the Seyfert Galaxy NGC 5548. *Hagai Netzer and Dan Maoz.* **365**, L5, 212-A11 (1990)

MARGULIS, MICHAEL. A Search for Scale-dependent Morphology in Five Molecular Cloud Complexes. *Robert L. Dickman, Mark A. Horvath, and Michael Margulis.* **365**, 586, 215-E1 (1990)

MARSH, T. R. Changes in the Orbital Periods of Close Binary Stars. *T. R. Marsh and J. E. Pringle.* **365**, 677, 216-F1 (1990)

MARTINELL, JULIO J. Expansion and Stability of a Magnetic Arcade during a Solar Flare. *Julio J. Martinell.* **365**, 342, 210-F1 (1990)

MATEO, MARIO. A Study of the Eclipsing Cataclysmic Variable Lanning 90. *Peter M. Garnavich, Paula Szkody, Mario Mateo, Laurie Feinswog, John Booth, Bret Goodrich, H. Richard Miller, Michael T. Carini, and John W. Wilson.* **365**, 696, 216-G13 (1990)

MATTEUCCI, FRANCESCA. Metallicity Distribution and Abundance Ratios in the Stars of the Galactic Bulge. *Francesca Matteucci and Enzo Brocato.* **365**, 539, 215-A1 (1990)

MATTHEWS, JAYMIE M. Rapid Infrared Photometry of Pulsating Ap Stars: A Measurement of Stellar Limb Darkening. *Jaymie M. Matthews, William H. Wehlau, and Gordon A. H. Walker.* **365**, L81, 219-E13 (1990)

MCCARTHY, PATRICK J. Extended Lyα Emission Associated with 3C 294. *Patrick J. McCarthy, Hyron Spinrad, Wil van Breugel, James Liebert, Mark Dickinson, S. Djorgovski, and Peter Eisenhardt.* **365**, 487, 214-B9 (1990)

METCALF, THOMAS R. Flare Heating and Ionization of the Low Solar Chromosphere. II. Observations of Five Solar Flares. *Thomas R. Metcalf, Richard C. Canfield, and Julia L. R. Saba.* **365**, 391, 211-C1 (1990)

MIDDLEDITCH, J. *Spartan 1* X-Ray Observations of the Perseus Cluster. II. The Distribution of Flux and Hardness Ratio Out to a Radius of 50 Arcminutes. *W. A. Snyder, M. P. Kowalski, R. G. Cruddace, G. G. Fritz, J. Middleditch, E. E. Fenimore, M. P. Ulmer, and S. R. Majewski.* **365**, 460, 213-F8 (1990)

MIDDLEDITCH, JOHN. The 8 Second Optical Quasi-periodic Oscillations in GX 339−4. *James N. Imamura, Jerome Kristian, John Middleditch, and Thomas Y. Steiman-Cameron.* **365**, 312, 210-C5 (1990)

MIHARA, T. Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* **365**, L59, 219-C11 (1990)

MILLER, H. RICHARD. A Study of the Eclipsing Cataclysmic Variable Lanning 90. *Peter M. Garnavich, Paula Szkody, Mario Mateo, Laurie Feinswog, John Booth, Bret Goodrich, H. Richard Miller, Michael T. Carini, and John W. Wilson.* **365**, 696, 216-G13 (1990)

MIRABEL, I. F. VLA Observations of High-Velocity H I Associated with the Herbig-Haro Objects 7–11. *L. F. Rodríguez, S. Lizano, J. Cantó, V. Escalante, and I. F. Mirabel.* **365**, 261, 209-F5 (1990)

MITSUDA, K. Radio and X-Ray States in the X-Ray Binary Scorpius X-1. *R. M. Hjellming, R. T. Stewart, G. L. White, R. Strom, W. H. G. Lewin, P. Hertz, K. S. Wood, J. P. Norris, K. Mitsuda, W. Penninx, and J. van Paradijs.* **365**, 681, 216-F7 (1990)

MIYAMOTO, S. Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* **365**, L59, 219-C11 (1990)

MOORE, MARLA H. Mass Spectra of Sputtered Polyoxymethylene: Implications for Comets. *Marla H. Moore and Toshihiko Tanabé.* **365**, L39, 212-D11 (1990)

MORAN, J. M. The Exciting Source of the Bipolar Outflow in L1448. *S. Curiel, J. C. Raymond, L. F. Rodríguez, J. Cantó, and J. M. Moran.* **365**, L85, 219-F5 (1990)

MORRIS, SIMON L. MS 1603.6+2600, An Unusual X-Ray Selected Binary System at High Galactic Latitude. *Simon L. Morris, James Liebert, John T. Stocke, Isabella M. Gioia, Rudy E. Schild, and Anna Wolter.* **365**, 686, 216-G1 (1990)

MURAKAMI, T. Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* **365**, L59, 219-C11 (1990)

NAGAR, PRAVEEN. 41 Sextantis A: Prototype of a New Class among Am Stars. *S. Sreedhar Rao, K. D. Abhyankar, and Praveen Nagar.* **365**, 336, 210-E7 (1990)

NAGASE, F. Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* **365**, L59, 219-C11 (1990)

NAKAI, NAOMASA. CO Emission from the Nucleus of Infrared Galaxy NGC 4418: An Early AGN Phase? *Kimiaki Kawara, Yoshiaki Taniguchi, Naomasa Nakai, and Yoshiaki Sofue.* **365**, L1, 212-A5 (1990)

NETZER, HAGAI. On the Emission-Line Response to Continuum Variations in the Seyfert Galaxy NGC 5548. *Hagai Netzer and Dan Maoz.* **365**, L5, 212-A11 (1990)

NOOK, M. A. A Rotating, Expanding Disk in the Wolf-Rayet Star EZ Canis Majoris? *R. E. Schulte-Ladbeck, K. H. Nordsieck, M. A. Nook, A. M. Magalhães, M. Taylor, K. S. Bjorkman, and C. M. Anderson.* **365**, L19, 212-C1 (1990)

NORDSIECK, K. H. A Rotating, Expanding Disk in the Wolf-Rayet Star EZ Canis Majoris? *R. E. Schulte-Ladbeck, K. H. Nordsieck, M. A. Nook, A. M. Magalhães, M. Taylor, K. S. Bjorkman, and C. M. Anderson.* **365**, L19, 212-C1 (1990)

NORMAN, MICHAEL L. Asymmetric Morphology of the Propagating Jet. *Philip E. Hardee and Michael L. Norman.* **365**, 134, 207-F5 (1990)

NORRIS, J. P. Radio and X-Ray States in the X-Ray Binary Scorpius X-1. *R. M. Hjellming, R. T. Stewart, G. L. White, R. Strom, W. H. G. Lewin, P. Hertz, K. S. Wood, J. P. Norris, K. Mitsuda, W. Penninx, and J. van Paradijs.* **365**, 681, 216-F7 (1990)

OHASHI, T. X-Ray Spectrum of the Spiral Galaxy M51 (NGC 5194). *K. Makishima, T. Ohashi, H. Kondo, G. G. C. Palumbo, and G. Trinchieri.* **365**, 159, 208-B3 (1990)

X-Ray Observations of NGC 253 and M83 with *Ginga*. *T. Ohashi, K. Makishima, T. Tsuru, S. Takano, K. Koyama, and G. C. Stewart.* **365**, 180, 208-D9 (1990)

Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* **365**, L59, 219-C11 (1990)

PACZYŃSKI, BOHDAN. Weak Gravitational Lensing Due to Large-Scale Structure of the Universe. *Michał Jaroszyński, Changbom Park, Bohdan Paczyński, and J. Richard Gott III.* **365**, 22, 206-C10 (1990)

X-Ray Pulsar 1E 2259+586: A Merged White Dwarf with a 7 Second Rotation Period? *Bohdan Paczyński.* **365**, L9, 212-B1 (1990)

PALUMBO, G. G. C. X-Ray Spectrum of the Spiral Galaxy M51 (NGC 5194). *K. Makishima, T. Ohashi, H. Kondo, G. G. C. Palumbo, and G. Trinchieri.* **365**, 159, 208-B3 (1990)

PAPALOIZOU, J. C. B. Propagation of Tidal Disturbance in Gaseous Accretion Disks. *D. N. C. Lin, J. C. B. Papaloizou, and G. J. Savonije.* **365**, 748, 217-E8 (1990)

PARK, CHANGBOM. Weak Gravitational Lensing Due to Large-Scale Structure of the Universe. *Michał Jaroszyński, Changbom Park,*

Bohdan Paczyński, and J. Richard Gott III. **365**, 22, 206-C10 (1990)

PEEBLES, P. J. E. Previrialization. *P. J. E. Peebles.* **365**, 27, 206-D1 (1990)

PENNINX, W. Radio and X-Ray States in the X-Ray Binary Scorpius X-1. *R. M. Hjellming, R. T. Stewart, G. L. White, R. Strom, W. H. G. Lewin, P. Hertz, K. S. Wood, J. P. Norris, K. Mitsuda, W. Penninx, and J. van Paradijs.* **365**, 681, 216-F7 (1990)

PENPRASE, B. E. Optical Spectroscopy of the High-Latitude Cloud Lynds 1569. *B. E. Penprase, J. C. Blades, A. C. Danks, and P. Crane.* **365**, 241, 209-B7 (1990)

PÉREZ-FOURNON, ISMAEL. Accretion Tori and Cones of Ionizing Radiation in Seyfert Galaxies. *José A. Acosta-Pulido, Ismael Pérez-Fournon, Massimo Calvani, and Andrew S. Wilson.* **365**, 119, 207-E1 (1990)

PETROSIAN, VAHÉ. Effects of Coulomb Collisions on Cyclotron Maser and Plasma Wave Growth in Magnetic Loops. *Russell J. Hamilton and Vahé Petrosian.* **365**, 778, 218-A1 (1990)

PINSONNEAULT, MARC H. Beryllium in the Galactic Halo: Surface Abundances from Standard, Diffusive, and Rotational Stellar Evolution, and Implications. *Constantine P. Deliyannis and Marc H. Pinsonneault.* **365**, L67, 219-D7 (1990)

PIPHER, JUDITH L. Infrared Imaging of the M8 Hourglass. *Charles E. Woodward, Judith L. Pipher, H. L. Helfer, and W. J. Forrest.* **365**, 252, 209-C7 (1990)

PIRAN, TSVI. The Appearance of Cosmic Fireballs. *Amotz Shemi and Tsvi Piran.* **365**, L55, 219-C5 (1990)

PIZZO, V. J. Numerical Modeling of Solar Magnetostatic Structures Bounded by Current Sheets. *V. J. Pizzo.* **365**, 764, 217-G1 (1990)

POSTMAN, M. A Deep Abell Cluster Redshift Survey. *J. P. Huchra, J. P. Henry, M. Postman, and M. J. Geller.* **365**, 66, 206-G1 (1990)

PRINGLE, J. E. Changes in the Orbital Periods of Close Binary Stars. *T. R. Marsh and J. E. Pringle.* **365**, 677, 216-F1 (1990)

QUENBY, J. J. Cosmic-Ray Gradient Measurements and Modulation beyond the Inner Solar Wind Termination Shock. *J. J. Quenby, J. A. Lockwood, and W. R. Webber.* **365**, 365, 211-A1 (1990)

RAFFELT, GEORG G. Core Mass at the Helium Flash from Observations and a New Bound on Neutrino Electromagnetic Properties. *Georg G. Raffelt.* **365**, 559, 215-B11 (1990)

RANK, D. Hydrocarbon Emission Features in the Infrared Spectra of Warm Supergiants. *R. H. Buss, Jr., M. Cohen, A. G. G. M. Tielens, M. W. Werner, J. D. Bregman, F. C. Witteborn, D. Rank, and S. A. Sanford.* **365**, L23, 212-C6 (1990)

RAO, A. R. *EXOSAT* Observations of the Suspected Flare Star BD +48°1958A. *A. R. Rao, K. P. Singh, and M. N. Vahia.* **365**, 332, 210-E1 (1990)

EXOSAT Observations of the Blazar PKS 1510−089. *K. P. Singh, A. R. Rao, and M. N. Vahia.* **365**, 455, 213-F1 (1990)

RAYMOND, J. C. The Exciting Source of the Bipolar Outflow in L1448. *S. Curiel, J. C. Raymond, L. F. Rodríguez, J. Cantó, and J. M. Moran.* **365**, L85, 219-F5 (1990)

RAYMOND, JOHN C. Predicted Extreme-Ultraviolet and X-Ray Spectrum of a Microflare-heated Corona. *John C. Raymond.* **365**, 387, 211-B11 (1990)

RENZINI, ALVIO. Double Degenerates among DA White Dwarfs. *Angela Bragaglia, Laura Greggio, Alvio Renzini, and Sandro D'Odorico.* **365**, L13, 212-B7 (1990)

RICKARD, G. J. Sheared Coronal Arcades: An Evaluation of Recent Studies. *I. J. D. Craig, G. J. Rickard, and A. D. Sneyd.* **365**, L35, 212-D6 (1990)

RICKARD, LEE J. CO(J = 2 → 1) Study of Molecular Clouds in the Southwest Arm of M31. *Marc L. Kutner, Frances Vertez, and Lee J Rickard.* **365**, 195, 208-E11 (1990)

ROBERTS, E. H. High-Resolution Imaging and the H-R Diagram of Galactic Bulge Planetary Nebulae. *M. A. Dopita, J. P. Henry, I. R. Tuohy, B. L. Webster, E. H. Roberts, Y.-I. Byun, L. L. Cowie, and A. Songaila.* **365**, 640, 216-B10 (1990)

RODRÍGUEZ, L. F. VLA Observations of High-Velocity H I Associated with the Herbig-Haro Objects 7–11. *L. F. Rodríguez, S. Lizano, J. Cantó, V. Escalante, and I. F. Mirabel.* **365**, 261, 209-F5 (1990)

The Exciting Source of the Bipolar Outflow in L1448. *S. Curiel, J. C. Raymond, L. F. Rodríguez, J. Cantó, and J. M. Moran.* **365**, L85, 219-F5 (1990)

RODRIGUEZ-ESPINOSA, J. M. NGC 985: Extended Ionized Regions and the Far-Infrared Luminosity of a Ring-shaped Seyfert Galaxy. *J. M. Rodríguez-Espinosa and R. M. Stanga.* **365**, 502, 214-C12 (1990)

ROSNER, R. *Einstein Observatory* Coronal Temperatures of Late-Type Stars. *J. H. M. M. Schmitt, A. Collura, S. Sciortino, G. S. Vaiana, F. R. Harnden, Jr., and R. Rosner.* **365**, 704, 217-A9 (1990)

ROTHERMEL, H. Molecular Absorption Lines toward the Nucleus of Centaurus A. *A. Eckart, M. Cameron, R. Genzel, J. M. Jackson, H. Rothermel, J. Stutzki, G. Rydbeck, and T. Wiklind.* **365**, 522, 214-F7 (1990)

RUBIN, VERA C. One Galaxy from Several: The Hickson Compact Group H31. *Vera C. Rubin, Deidre A. Hunter, and W. Kent Ford, Jr.* **365**, 86, 207-A10 (1990)

RYDBECK, G. Molecular Absorption Lines toward the Nucleus of Centaurus A. *A. Eckart, M. Cameron, R. Genzel, J. M. Jackson, H. Rothermel, J. Stutzki, G. Rydbeck, and T. Wiklind.* **365**, 522, 214-F7 (1990)

SABA, JULIA L. R. Flare Heating and Ionization of the Low Solar Chromosphere. II. Observations of Five Solar Flares. *Thomas R. Metcalf, Richard C. Canfield, and Julia L. R. Saba.* **365**, 391, 211-C1 (1990)

SAKAI, JUN-ICHI. High-Energy Particle Acceleration during the Implosion Driven by Three-dimensional X-Type Current Loop Coalescence in Solar Flares. *Jun-ichi Sakai.* **365**, 354, 210-G1 (1990)

SAKAO, T. Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* **365**, L59, 219-C11 (1990)

SANDAGE, ALLAN. Steps toward the Hubble Constant. IX. The Cosmic Value of H_0 Freed from All Local Velocity Anomalies. *Allan Sandage and G. A. Tammann.* **365**, 1, 206-B1 (1990)

SANFORD, S. A. Hydrocarbon Emission Features in the Infrared Spectra of Warm Supergiants. *R. H. Buss, Jr., M. Cohen, A. G. G. M. Tielens, M. W. Werner, J. D. Bregman, F. C. Witteborn, D. Rank, and S. A. Sanford.* **365**, L23, 212-C6 (1990)

SARAJEDINI, ATA. A New Age Diagnostic Applied to the Globular Clusters NGC 288 and NGC 362. *Ata Sarajedini and Pierre Demarque.* **365**, 219, 208-G9 (1990)

SASAKI, MISAO. Constraints on Universe Models with Cosmological Constant from Cosmic Microwave Background Anisotropy. *Naoshi Sugiyama, Naoteru Gouda, and Misao Sasaki.* **365**, 432, 213-D1 (1990)

SASLAW, WILLIAM C. The Kinetic Evolution and Velocity Distribution of Gravitational Galaxy Clustering. *William C. Saslaw, S. M. Chitre, Makoto Itoh, and Shogo Inagaki.* **365**, 419, 213-C1 (1990)

SATO, SHUJI. The Density Structure of the Protostellar Disk: A Power-Law Distribution of the Dust around GGD 27 IRS. *Takuya Yamashita, Shuji Sato, Norio Kaifu, and Saeko S. Hayashi.* **365**, 615, 215-G9 (1990)

SAVAGE, BLAIR D. Scattered Light in the Echelle Modes of the Goddard High-Resolution Spectrograph Aboard the *Hubble Space Telescope*. I. Analysis of Prelaunch Calibration Data. *Jason A. Cardelli, Dennis C. Ebbets, and Blair D. Savage.* **365**, 789, 218-B1 (1990)

SAVONIJE, G. J. Propagation of Tidal Disturbance in Gaseous Accretion Disks. *D. N. C. Lin, J. C. B. Papaloizou, and G. J. Savonije.* **365**, 748, 217-E8 (1990)

SCHIANO, A. V. R. The Hydrodynamic Collapse of Protogalaxies to Lyα Disks. *A. V. R. Schiano, A. M. Wolfe, and C. A. Chang.* **365**, 439, 213-D10 (1990)

SCHILD, RUDY E. MS 1603.6+2600, An Unusual X-Ray Selected Binary System at High Galactic Latitude. *Simon L. Morris, James Liebert, John T. Stocke, Isabella M. Gioia, Rudy E. Schild, and Anna Wolter.* **365**, 686, 216-G1 (1990)

SCHMITT, J. H. M. M. *Einstein Observatory* Coronal Temperatures of Late-Type Stars. *J. H. M. M. Schmitt, A. Collura, S. Sciortino, G. S. Vaiana, F. R. Harnden, Jr., and R. Rosner.* **365**, 704, 217-A9 (1990)

SCHRAMM, S. Pycnonuclear Fusion Rates. *S. Schramm and S. E. Koonin.* 365, 296, 210-B1 (1990)

SCHULTE-LADBECK, R. E. A Rotating, Expanding Disk in the Wolf-Rayet Star EZ Canis Majoris? *R. E. Schulte-Ladbeck, K. H. Nordsieck, M. A. Nook, A. M. Magalhães, M. Taylor, K. S. Bjorkman, and C. M. Anderson.* 365, L19, 212-C1 (1990)

SCIORTINO, S. *Einstein Observatory* Coronal Temperatures of Late-Type Stars. *J. H. M. M. Schmitt, A. Collura, S. Sciortino, G. S. Vaiana, F. R. Harnden, Jr., and R. Rosner.* 365, 704, 217-A9 (1990)

SHEELEY, N. R., JR. Magnetic Flux Transport and the Sunspot-Cycle Evolution of Coronal Holes and Their Wind Streams. *Y.-M. Wang and N. R. Sheeley, Jr.* 365, 372, 211-A9 (1990)

SHEMI, AMOTZ. The Appearance of Cosmic Fireballs. *Amotz Shemi and Tsvi Piran.* 365, L55, 219-C5 (1990)

SHORE, STEVEN N. Magnetically Controlled Circumstellar Matter in the Helium-strong Stars. *Steven N. Shore and Douglas N. Brown.* 365, 665, 216-E1 (1990)

SILK, J. The Morphology-Density Relation for Galaxies in a Cold Dark Matter–dominated Universe. *A. E. Evrard, J. Silk, and A. S. Szalay.* 365, 13, 206-C1 (1990)

SIMONS, D. A. The Subarcsecond Infrared Structures at the Centers of Infrared-luminous Galaxies. *S. A. Eales, E. E. Becklin, K.-W. Hodapp, D. A. Simons, and C. G. Wynn-Williams.* 365, 478, 214-A12 (1990)

SINGH, K. P. *EXOSAT* Observations of the Suspected Flare Star BD +48°1958A. *A. R. Rao, K. P. Singh, and M. N. Vahia.* 365, 332, 210-E1 (1990)

EXOSAT Observations of the Blazar PKS 1510−089. *K. P. Singh, A. R. Rao, and M. N. Vahia.* 365, 455, 213-F1 (1990)

SNEYD, A. D. Sheared Coronal Arcades: An Evaluation of Recent Studies. *I. J. D. Craig, G. J. Rickard, and A. D. Sneyd.* 365, L35, 212-D6 (1990)

SNYDER, W. A. *Spartan 1* X-Ray Observations of the Perseus Cluster. II. The Distribution of Flux and Hardness Ratio Out to a Radius of 50 Arcminutes. *W. A. Snyder, M. P. Kowalski, R. G. Cruddace, G. G. Fritz, J. Middleditch, E. E. Fenimore, M. P. Ulmer, and S. R. Majewski.* 365, 460, 213-F8 (1990)

SOFUE, YOSHIAKI. CO Emission from the Nucleus of Infrared Galaxy NGC 4418: An Early AGN Phase? *Kimiaki Kawara, Yoshiaki Taniguchi, Naomasa Nakai, and Yoshiaki Sofue.* 365, L1, 212-A5 (1990)

SONGAILA, A. High-Resolution Imaging and the H-R Diagram of Galactic Bulge Planetary Nebulae. *M. A. Dopita, J. P. Henry, I. R. Tuohy, B. L. Webster, E. H. Roberts, Y.-I. Byun, L. L. Cowie, and A. Songaila.* 365, 640, 216-B10 (1990)

SPINRAD, HYRON. Extended Lyα Emission Associated with 3C 294. *Patrick J. McCarthy, Hyron Spinrad, Wil van Breugel, James Liebert, Mark Dickinson, S. Djorgovski, and Peter Eisenhardt.* 365, 487, 214-B9 (1990)

SREEDHAR RAO, S. 41 Sextantis A: Prototype of a New Class among Am Stars. *S. Sreedhar Rao, K. D. Abhyankar, and Praveen Nagar.* 365, 336, 210-E7 (1990)

STANGA, R. M. NGC 985: Extended Ionized Regions and the Far-Infrared Luminosity of a Ring-shaped Seyfert Galaxy. *J. M. Rodríguez-Espinosa and R. M. Stanga.* 365, 502, 214-C12 (1990)

STEBBINS, ALBERT. Causal Compensated Perturbations in Cosmology. *Shoba Veeraraghavan and Albert Stebbins.* 365, 37, 206-E1 (1990)

STEIMAN-CAMERON, THOMAS Y. The 8 Second Optical Quasi-periodic Oscillations in GX 339−4. *James N. Imamura, Jerome Kristian, John Middleditch, and Thomas Y. Steiman-Cameron.* 365, 312, 210-C5 (1990)

STEVENS, IAN R. X-Ray Illuminated Stellar Winds: Ionization Effects in the Radiative Driving of Stellar Winds in Massive X-Ray Binary Systems. *Ian R. Stevens and Timothy R. Kallman.* 365, 321, 210-D1 (1990)

STEWART, G. C. X-Ray Observations of NGC 253 and M83 with *Ginga*. *T. Ohashi, K. Makishima, T. Tsuru, S. Takano, K. Koyama, and G. C. Stewart.* 365, 180, 208-D9 (1990)

STEWART, R. T. Radio and X-Ray States in the X-Ray Binary Scorpius X-1. *R. M. Hjellming, R. T. Stewart, G. L. White, R. Strom, W. H. G. Lewin, P. Hertz, K. S. Wood, J. P. Norris, K. Mitsuda, W. Penninx, and J. van Paradijs.* 365, 681, 216-F7 (1990)

STOCKE, JOHN T. MS 1603.6+2600, An Unusual X-Ray Selected Binary System at High Galactic Latitude. *Simon L. Morris, James Liebert, John T. Stocke, Isabella M. Gioia, Rudy E. Schild, and Anna Wolter.* 365, 686, 216-G1 (1990)

STROM, R. Radio and X-Ray States in the X-Ray Binary Scorpius X-1. *R. M. Hjellming, R. T. Stewart, G. L. White, R. Strom, W. H. G. Lewin, P. Hertz, K. S. Wood, J. P. Norris, K. Mitsuda, W. Penninx, and J. van Paradijs.* 365, 681, 216-F7 (1990)

STUTZKI, J. Molecular Absorption Lines toward the Nucleus of Centaurus A. *A. Eckart, M. Cameron, R. Genzel, J. M. Jackson, H. Rothermel, J. Stutzki, G. Rydbeck, and T. Wiklind.* 365, 522, 214-F7 (1990)

SUGIYAMA, NAOSHI. Constraints on Universe Models with Cosmological Constant from Cosmic Microwave Background Anisotropy. *Naoshi Sugiyama, Naoteru Gouda, and Misao Sasaki.* 365, 432, 213-D1 (1990)

SULENTIC, JACK W. A Double-Stream Model for Line Profiles. *Wei Zheng, Luc Binette, and Jack W. Sulentic.* 365, 115, 207-D11 (1990)

SZALAY, A. S. The Morphology-Density Relation for Galaxies in a Cold Dark Matter–dominated Universe. *A. E. Evrard, J. Silk, and A. S. Szalay.* 365, 13, 206-C1 (1990)

SZKODY, PAULA. A Study of the Eclipsing Cataclysmic Variable Lanning 90. *Peter M. Garnavich, Paula Szkody, Mario Mateo, Laurie Feinswog, John Booth, Bret Goodrich, H. Richard Miller, Michael T. Carini, and John W. Wilson.* 365, 696, 216-G13 (1990)

TAFF, L. G. The Astrometric Calibration of the *Hubble Space Telescope* Fine Guidance Sensors. *L. G. Taff.* 365, 407, 211-D5 (1990)

TAKANO, S. X-Ray Observations of NGC 253 and M83 with *Ginga*. *T. Ohashi, K. Makishima, T. Tsuru, S. Takano, K. Koyama, and G. C. Stewart.* 365, 180, 208-D9 (1990)

TAMMANN, G. A. Steps toward the Hubble Constant. IX. The Cosmic Value of H_0 Freed from All Local Velocity Anomalies. *Allan Sandage and G. A. Tammann.* 365, 1, 206-B1 (1990)

TANABÉ, TOSHIHIKO. Mass Spectra of Sputtered Polyoxymethylene: Implications for Comets. *Marla H. Moore and Toshihiko Tanabé.* 365, L39, 212-D11 (1990)

TANAKA, Y. Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* 365, L59, 219-C11 (1990)

TANIGUCHI, YOSHIAKI. CO Emission from the Nucleus of Infrared Galaxy NGC 4418: An Early AGN Phase? *Kimiaki Kawara, Yoshiaki Taniguchi, Naomasa Nakai, and Yoshiaki Sofue.* 365, L1, 212-A5 (1990)

TASHIRO, M. Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* 365, L59, 219-C11 (1990)

TAWARA, Y. Optically Thin Hot Plasma near the Galactic Center: Mapping Observations of the 6.7 keV Iron Line. *S. Yamauchi, M. Kawada, K. Koyama, H. Kunieda, and Y. Tawara.* 365, 532, 214-G5 (1990)

Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* 365, L59, 219-C11 (1990)

TAYLOR, M. A Rotating, Expanding Disk in the Wolf-Rayet Star EZ Canis Majoris? *R. E. Schulte-Ladbeck, K. H. Nordsieck, M. A. Nook, A. M. Magalhães, M. Taylor, K. S. Bjorkman, and C. M. Anderson.* 365, L19, 212-C1 (1990)

TELESCO, C. M. High Spatial Resolution Mapping of the Cepheus A Region at 20, 50, and 100 Microns. *H. B. Ellis, Jr., D. F. Lester, P. M. Harvey, M. Joy, C. M. Telesco, R. Decher, and M. W. Werner.* 365, 287, 210-A6 (1990)

TESKE, RICHARD G. Forbidden Coronal Iron Emission in the Cygnus Loop. *Richard G. Teske.* 365, 256, 209-D5 (1990)

THADDEUS, P. Laboratory Detection of a Second Carbon Chain Carbene: Butatrienylidene, H_2CCCC. *T. C. Killian, J. M. Vrtilek, C. A. Gottlieb, E. W. Gottlieb, and P. Thaddeus.* 365, L89, 219-F11 (1990)

TIELENS, A. G. G. M. Line Emission from Clumpy Photodissociation Regions. *Michael G. Burton, D. J. Hollenbach, and A. G. G. M. Tielens.* 365, 620, 216-A1 (1990)

Hydrocarbon Emission Features in the Infrared Spectra of Warm Supergiants. *R. H. Buss, Jr., M. Cohen, A. G. G. M. Tielens, M. W. Werner, J. D. Bregman, F. C. Witteborn, D. Rank, and S. A. Sanford.* 365, L23, 212-C6 (1990)

TRINCHIERI, G. X-Ray Spectrum of the Spiral Galaxy M51 (NGC 5194). *K. Makishima, T. Ohashi, H. Kondo, G. G. C. Palumbo, and G. Trinchieri.* 365, 159, 208-B3 (1990)

TSUJI, T. Phosphorus in the Dense Interstellar Medium. *B. E. Turner, T. Tsuji, J. Bally, M. Guelin, and J. Cernicharo.* 365, 569, 215-C9 (1990)

TSURU, T. X-Ray Observations of NGC 253 and M83 with *Ginga*. *T. Ohashi, K. Makishima, T. Tsuru, S. Takano, K. Koyama, and G. C. Stewart.* 365, 180, 208-D9 (1990)

Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* 365, L59, 219-C11 (1990)

TUOHY, I. R. High-Resolution Imaging and the H-R Diagram of Galactic Bulge Planetary Nebulae. *M. A. Dopita, J. P. Henry, I. R. Tuohy, B. L. Webster, E. H. Roberts, Y.-I. Byun, L. L. Cowie, and A. Songaila.* 365, 640, 216-B10 (1990)

TURNER, B. E. Phosphorus in the Dense Interstellar Medium. *B. E. Turner, T. Tsuji, J. Bally, M. Guelin, and J. Cernicharo.* 365, 569, 215-C9 (1990)

TURNER, EDWIN L. Gravitational Lensing Limits on the Cosmological Constant in a Flat Universe. *Edwin L. Turner.* 365, L43, 219-B1 (1990)

TURNER, M. J. L. Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* 365, L59, 219-C11 (1990)

ULMER, M. P. *Spartan 1* X-Ray Observations of the Perseus Cluster. II. The Distribution of Flux and Hardness Ratio Out to a Radius of 50 Arcminutes. *W. A. Snyder, M. P. Kowalski, R. G. Cruddace, G. G. Fritz, J. Middleditch, E. E. Fenimore, M. P. Ulmer, and S. R. Majewski.* 365, 460, 213-F8 (1990)

VAHIA, M. N. *EXOSAT* Observations of the Suspected Flare Star BD +48°1958A. *A. R. Rao, K. P. Singh, and M. N. Vahia.* 365, 332, 210-E1 (1990)

EXOSAT Observations of the Blazar PKS 1510−089. *K. P. Singh, A. R. Rao, and M. N. Vahia.* 365, 455, 213-F1 (1990)

VAIANA, G. S. *Einstein Observatory* Coronal Temperatures of Late-Type Stars. *J. H. M. M. Schmitt, A. Collura, S. Sciortino, G. S. Vaiana, F. R. Harnden, Jr., and R. Rosner.* 365, 704, 217-A9 (1990)

VAN BREUGEL, WIL. Extended Lyα Emission Associated with 3C 294. *Patrick J. McCarthy, Hyron Spinrad, Wil van Breugel, James Liebert, Mark Dickinson, S. Djorgovski, and Peter Eisenhardt.* 365, 487, 214-B9 (1990)

VAN DEN BERGH, SIDNEY. CCD Observations of the Polarization of the Crab Nebula. *Paul Hickson and Sidney van den Bergh.* 365, 224, 209-A1 (1990)

VAN PARADIJS, J. Radio and X-Ray States in the X-Ray Binary Scorpius X-1. *R. M. Hjellming, R. T. Stewart, G. L. White, R. Strom, W. H. G. Lewin, P. Hertz, K. S. Wood, J. P. Norris, K. Mitsuda, W. Penninx, and J. van Paradijs.* 365, 681, 216-F7 (1990)

VEERARAGHAVAN, SHOBA. Causal Compensated Perturbations in Cosmology. *Shoba Veeraraghavan and Albert Stebbins.* 365, 37, 206-E1 (1990)

VERTER, FRANCES. CO(J = 2 → 1) Study of Molecular Clouds in the Southwest Arm of M31. *Marc L. Kutner, Frances Verter, and Lee J Rickard.* 365, 195, 208-E11 (1990)

VILCHEZ, J. M. A Remarkable Feature in the Giant Extragalactic H II Region NGC 5471. *Hector O. Castañeda, J. M. Vilchez, and Marcus V. F. Copetti.* 365, 164, 208-B9 (1990)

VISHNIAC, ETHAN T. Dynamo Action by Internal Waves in Accretion Disks. *Ethan T. Vishniac, Liping Jin, and Patrick Diamond.* 365, 648, 216-C8 (1990)

VOELS, STEPHEN A. Photospheres of Hot Stars. IV. Spectral Type O4. *Bruce Bohannan, Stephen A. Voels, David G. Hummer, and David C. Abbott.* 365, 729, 217-C13 (1990)

VOLK, KEVIN. On the Formation of Carbon Stars. *Greg L. Bryan, Kevin Volk, and Sun Kwok.* 365, 301, 210-B7 (1990)

VRTILEK, J. M. Laboratory Detection of a Second Carbon Chain Carbene: Butatrienylidene, H_2CCCC. *T. C.-Killian, J. M. Vrtilek, C. A. Gottlieb, E. W. Gottlieb, and P. Thaddeus.* 365, L89, 219-F11 (1990)

WALKER, ALISTAIR R. Planetary Nebulae as Standard Candles. VI. A Test in the Magellanic Clouds. *George H. Jacoby, Alistair R. Walker, and Robin Ciardullo.* 365, 471, 213-G7 (1990)

WALKER, GORDON A. H. Rapid Infrared Photometry of Pulsating Ap Stars: A Measurement of Stellar Limb Darkening. *Jaymie M. Matthews, William H. Wehlau, and Gordon A. H. Walker.* 365, L81, 219-E13 (1990)

WALMSLEY, C. M. An Observational Study of Millimeter-Wave Recombination Lines. *M. A. Gordon and C. M. Walmsley.* 365, 606, 215-F11 (1990)

WANG, Y.-M. Magnetic Flux Transport and the Sunspot-Cycle Evolution of Coronal Holes and Their Wind Streams. *Y.-M. Wang and N. R. Sheeley, Jr.* 365, 372, 211-A9 (1990)

WEBBER, W. R. Cosmic-Ray Gradient Measurements and Modulation beyond the Inner Solar Wind Termination Shock. *J. J. Quenby, J. A. Lockwood, and W. R. Webber.* 365, 365, 211-A1 (1990)

WEBSTER, B. L. High-Resolution Imaging and the H-R Diagram of Galactic Bulge Planetary Nebulae. *M. A. Dopita, J. P. Henry, I. R. Tuohy, B. L. Webster, E. H. Roberts, Y.-I. Byun, L. L. Cowie, and A. Songaila.* 365, 640, 216-B10 (1990)

WEHLAU, WILLIAM H. Rapid Infrared Photometry of Pulsating Ap Stars: A Measurement of Stellar Limb Darkening. *Jaymie M. Matthews, William H. Wehlau, and Gordon A. H. Walker.* 365, L81, 219-E13 (1990)

WERNER, M. W. High Spatial Resolution Mapping of the Cepheus A Region at 20, 50, and 100 Microns. *H. B. Ellis, Jr., D. F. Lester, P. M. Harvey, M. Joy, C. M. Telesco, R. Decher, and M. W. Werner.* 365, 287, 210-A6 (1990)

Hydrocarbon Emission Features in the Infrared Spectra of Warm Supergiants. *R. H. Buss, Jr., M. Cohen, A. G. G. M. Tielens, M. W. Werner, J. D. Bregman, F. C. Witteborn, D. Rank, and S. A. Sanford.* 365, L23, 212-C6 (1990)

WESEMAEL, F. Detection of Trace Helium in G104-27, A 26,000 K DA White Dwarf. *J. B. Holberg, K. M. Kidder, and F. Wesemael.* 365, L77, 219-E7 (1990)

WHITE, G. L. Radio and X-Ray States in the X-Ray Binary Scorpius X-1. *R. M. Hjellming, R. T. Stewart, G. L. White, R. Strom, W. H. G. Lewin, P. Hertz, K. S. Wood, J. P. Norris, K. Mitsuda, W. Penninx, and J. van Paradijs.* 365, 681, 216-F7 (1990)

WHITE, RICHARD L. A New Catalog of 53,522 4.85 GHz Sources (Abstract of Paper in 1991 January Suppl.). *Robert H. Becker, Richard L. White, and Alan L. Edwards.* 365, 803, 218-C1 (1990)

WIKLIND, T. Molecular Absorption Lines toward the Nucleus of Centaurus A. *A. Eckart, M. Cameron, R. Genzel, J. M. Jackson, H. Rothermel, J. Stutzki, G. Rydbeck, and T. Wiklind.* 365, 522, 214-F7 (1990)

WILKING, BRUCE A. Cold DCO^+ Cores and Protostars in the Warm ρ Ophiuchi Cloud. *Robert B. Loren, Alwyn Wootten, and Bruce A. Wilking.* 365, 269, 209-G1 (1990)

WILSON, ANDREW S. Accretion Tori and Cones of Ionizing Radiation in Seyfert Galaxies. *José A. Acosta-Pulido, Ismael Pérez-Fournon, Massimo Calvani, and Andrew S. Wilson.* 365, 119, 207-E1 (1990)

WILSON, JOHN W. A Study of the Eclipsing Cataclysmic Variable Lanning 90. *Peter M. Garnavich, Paula Szkody, Mario Mateo, Laurie Feinswog, John Booth, Bret Goodrich, H. Richard Miller, Michael T. Carini, and John W. Wilson.* 365, 696, 216-G13 (1990)

WITTEBORN, F. C. Hydrocarbon Emission Features in the Infrared Spectra of Warm Supergiants. *R. H. Buss, Jr., M. Cohen, A. G. G. M. Tielens, M. W. Werner, J. D. Bregman, F. C. Witteborn, D. Rank, and S. A. Sanford.* 365, L23, 212-C6 (1990)

WOLFE, A. M. The Hydrodynamic Collapse of Protogalaxies to Lyα Disks. *A. V. R. Schiano, A. M. Wolfe, and C. A. Chang.* 365, 439, 213-D10 (1990)

WOLTER, ANNA. MS 1603.6+2600, An Unusual X-Ray Selected Binary System at High Galactic Latitude. *Simon L. Morris, James Liebert, John T. Stocke, Isabella M. Gioia, Rudy E. Schild, and Anna Wolter.* 365, 686, 216-G1 (1990)

WOOD, K. S. Radio and X-Ray States in the X-Ray Binary Scorpius X-1. *R. M. Hjellming, R. T. Stewart, G. L. White, R. Strom, W. H. G. Lewin, P. Hertz, K. S. Wood, J. P. Norris, K. Mitsuda, W. Penninx, and J. van Paradijs.* 365, 681, 216-F7 (1990)

WOODWARD, CHARLES E. Infrared Imaging of the M8 Hourglass. *Charles E. Woodward, Judith L. Pipher, H. L. Helfer, and W. J. Forrest.* 365, 252, 209-C7 (1990)

WOOTTEN, ALWYN. Cold DCO^+ Cores and Protostars in the Warm ρ Ophiuchi Cloud. *Robert B. Loren, Alwyn Wootten, and Bruce A. Wilking.* 365, 269, 209-G1 (1990)

WYNN-WILLIAMS, C. G. The Subarcsecond Infrared Structures at the Centers of Infrared-luminous Galaxies. *S. A. Eales, E. E. Becklin, K.-W. Hodapp, D. A. Simons, and C. G. Wynn-Williams.* 365, 478, 214-A12 (1990)

XU, CONG. Heating of the Cool Dust in Spiral Galaxies and the Far-Infrared/Radio Correlation. *Cong Xu.* 365, L47, 219-B7 (1990)

YAMASHITA, TAKUYA. The Density Structure of the Protostellar Disk: A Power-Law Distribution of the Dust around GGD 27 IRS. *Takuya Yamashita, Shuji Sato, Norio Kaifu, and Saeko S. Hayashi.* 365, 615, 215-G9 (1990)

YAMAUCHI, S. Optically Thin Hot Plasma near the Galactic Center: Mapping Observations of the 6.7 keV Iron Line. *S. Yamauchi, M. Kawada, K. Koyama, H. Kunieda, and Y. Tawara.* 365, 532, 214-G5 (1990)

YOSHIDA, A. Discovery of a Prominent Cyclotron Absorption Feature from the Transient X-Ray Pulsar X0331+53. *K. Makishima, T. Mihara, M. Ishida, T. Ohashi, T. Sakao, M. Tashiro, T. Tsuru, T. Kii, F. Makino, T. Murakami, F. Nagase, Y. Tanaka, H. Kunieda, Y. Tawara, S. Kitamoto, S. Miyamoto, A. Yoshida, and M. J. L. Turner.* 365, L59, 219-C11 (1990)

YUN, JOAO LIN. Star Formation in Small Globules: Bart Bok Was Correct! *João Lin Yun and Dan P. Clemens.* 365, L73, 219-E1 (1990)

ZHENG, WEI. A Double-Stream Model for Line Profiles. *Wei Zheng, Luc Binette, and Jack W. Sulentic.* 365, 115, 207-D11 (1990)

ZYGELMAN, B. The Radiative Association of He^+ and H. *B. Zygelman and A. Dalgarno.* 365, 239, 209-B5 (1990)